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EXAMINER	
THANGAVELU, KANDASAMY	
ART UNIT	**PAPER NUMBER**
2123	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/510,053	NIXON ET AL.	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2-28-05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. This communication is in response to the Applicants' Response mailed on February 22, 2005. Claims 1-3 and 6-19 were amended. Claims 1-21 of the application are pending. This office action is made non-final in response to Applicants' Request for Continued Examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 6 states in part, "wherein the configuration application when executed on the controller, creates a further control module for execution within the distributed controller during operation of the distributed process control system". However, the

specification describes only executing the configuration application within the computer as shown in Fig.2, but not executing the configuration application within the controller to create a further control module.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1- 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claim 1 states in part, "wherein the configuration application, when executed on the computer, further creates the one of the control modules capable of being used by the distributed controller within the distributed process control system ". The use of the term, "capable of" as part of the claim limitation indicates what the apparatus/method could do. 35 U.S.C. 112, second paragraph requires that the inventors distinctly claim what their invention does. The use the term "capable of" as part of the claim limitation makes the claims vague and indefinite, as it is not clear as to what the invention actually does.

Claims rejected but not specifically addressed are rejected based on their dependency on rejected claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

7. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1, 6-8, 10-12 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al**. (U.S. Patent 6, 377,859).

8.1 **Leibold** teaches system and method for simulating signal flow through a logic block pattern of a real time process control system. Specifically, as per claim 1, **Leibold** teaches an apparatus for use with a distributed process control system having a user workstation remotely

located from a distributed controller that controls one or more field devices using control modules (CL1, L24-27; CL1, L33-35; CL1, L38-41; Fig. 3A and 3B); the apparatus comprising:

a computer having a memory and a processing unit (Fig. 3A; Fig. 3B, Items 370, 375 and 385);

a configuration application stored in the memory of the computer which when executed on the user workstation or computer creates one or more control modules for execution by the distributed controller (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20); and

a controller application stored in the memory of the computer which may be executed on the processing unit of the computer (CL2, L49-52; CL2, L54-67);

wherein the configuration application, when executed on the computer, further creates the one of the control modules capable of being used by the distributed controller within the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

Leibold teaches that at least one of the control modules is created to communicate with a user interface module to perform a control activity (CL4, L5-10) and with a simulation module to perform simulation (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30). **Leibold** does not expressly teach that at least one of the control modules is created to communicate with a further module in a device separated from the distributed controller to perform a control activity. **Brown et al**. teaches that at least one of the control modules is able to communicate with a further module in a device separated from the distributed controller to perform a control activity

(CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (CL2, L14-18). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included at least one of the control modules being created to communicate with a user interface module to perform a control activity and with a simulation module to perform simulation with the apparatus of **Brown et al**. that included at least one of the control modules being able to communicate with a further module in a device separated from the distributed controller to perform a control activity. The artisan would have been motivated because that would allow at least one of the control modules being created to communicate with a further module in a device separated from the distributed controller to perform a control activity; and allow the devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified.

Leibold teaches that the controller application when executed on the distributed controller implements the one of the control modules during operation of the distributed process control system (CL1, L33-35; CL1, L38-41; CL10, L7-13). **Leibold** does not expressly teach that the controller application when executed on the distributed controller implements the one of the control modules during operation of the distributed process control system to communicate with the further module to perform the control activity. **Brown et al**. teaches that the controller application when executed on the distributed controller implements the one of the control modules during operation of the distributed process control system to communicate with the further module to perform the control activity (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the

distributed control systems to be simplified (Col 2, Lines 1- 14; Lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al**. that included the controller application when executed on the distributed controller implementing the one of the control modules during operation of the distributed process control system to communicate with the further module to perform the control activity. The artisan would have been motivated because that would allow devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified.

Leibold teaches that the controller application when executed on the computer causes execution of the one of the control modules within the computer to simulate the operation of the one of the control modules to thereby simulate operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30). **Leibold** does not expressly teach that the controller application when executed on the computer causes execution of the one of the control modules within the computer to simulate the operation of the one of the control modules including simulating communicating with the further module. **Brown et al**. teaches execution of the one of the control modules within the computer including communicating with the further module (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (Col 2, Lines 1- 14; Lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included the controller application when executed on the computer causing execution of the one of the control modules within the computer to simulate the operation of the one of the control modules to thereby

simulate operation of the distributed process control system with the apparatus of **Brown et al.** that included execution of the one of the control modules within the computer including communicating with the further module. The artisan would have been motivated because that would allow the controller application when executed on the computer causing execution of the one of the control modules within the computer to simulate the operation of the one of the control modules including simulating communicating with the further module; and that would allow devices made by different manufacturers to be simulated.

8.2 As per Claim 6, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches that the configuration application when executed on the controller creates a further control module (this is an updated version of the original control module) for execution within the distributed controller during operation of the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

8.3 As per Claim 7, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches that the configuration application when executed, creates the further module to be executed within one of the field devices communicatively connected to the distributed controller during the operation of the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

8.4 As per Claim 8, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches that the apparatus further includes a simulation application stored in the memory of the

computer which when executed on the processing unit of the computer, communicates with the controller application within the computer to simulate the operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30).

8.5 As per Claim 10, **Leibold** and **Brown et al**. teach the apparatus of claim 1. **Leibold** teaches the controller application executed on the computer (CL2, L49-52; CL2, L54-67). **Leibold** does not expressly teach that the controller application when executed on the computer communicates with a further controller that is of a different type than the distributed controller of the distributed process control system. **Brown et al**. teaches that the controller application when executed on the computer communicates with a further controller that is of a different type than the distributed controller of the distributed process control system (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (CL2, L14-18). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al**. that included the controller application when executed on the computer communicating with a further controller that is of a different type than the distributed controller of the distributed process control system. The artisan would have been motivated because that would allow at least one of the control modules being created to communicate with a further module in a device separated from the distributed controller to perform a control activity; and allow the devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified.

8.6 As per Claim 11, **Leibold** and **Brown et al**. teach the apparatus of claim 10. **Leibold** teaches the apparatus further including a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, communicates with the controller application and uses a user interface to display information (CL4, L5-10).

Leibold does not expressly teach a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, communicates with the controller application and uses a user interface to display information sent from the further controller. **Brown et al**. teaches execution of the one of the control modules within the computer including communicating with the further module (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (Col 2, Lines 1- 14; Lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included the apparatus further including a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, communicated with the controller application and used a user interface to display information with the apparatus of **Brown et al**. that included execution of the one of the control modules within the computer including communicating with the further module. The artisan would have been motivated because that would allow a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer, to communicate with the

controller application and use a user interface to display information sent from the further controller; and that would allow devices made by different manufacturers to be simulated.

8.7 As per Claims 12, 17 and 18, these are rejected based on the same reasoning as Claims 1, 7 and 8, supra. Claims 12, 17 and 18 are method claims reciting the same limitations as Claims 1, 7 and 8, as taught throughout by **Leibold** and **Brown et al.**

8.8 As per Claim 19, **Leibold** teaches an apparatus for use in conjunction with a distributed process control system having a user workstation remotely located from a distributed controller that controls one or more field devices using control modules (CL1, L24-27; CL1, L33-35; CL1, L38-41; Fig. 3A and 3B); the apparatus comprising:

a computer having a memory and a processing unit (Fig. 3A; Fig. 3B, Items 370, 375 and 385);

a display connected to the computer (Fig 3A Item 205);

a controller application stored in the memory of the computer (CL2, L49-52; CL2, L54-67);

wherein the controller application when executed on the distributed controller implements a control module during operation of the distributed process control system (CL1, L33-35; CL1, L38-41; CL10, L7-13); and

a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, communicates with the controller application and uses the display to display information (CL4, L5-10).

Leibold does not expressly teach that the controller application when executed on the computer communicates with a further controller that is of a different type than the distributed controller of the distributed process control system. **Brown et al**. teaches that the controller application when executed on the computer (simulation model) communicates with a further controller that is of a different type than the distributed controller of the distributed process control system (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (CL 2, L1-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al**. that included the controller application when executed on the computer (simulation model) communicating with a further controller that was of a different type than the distributed controller of the distributed process control system. The artisan would have been motivated because that would allow devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified.

Leibold does not expressly teach a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, communicates with the controller application and uses the display to display information sent from the further controller. **Brown et al**. teaches execution of the one of the control modules within the computer including communicating with the further module (CL2, L1-25), as that allows devices made by different manufacturers to interoperate, the process control to be decentralized and the distributed control systems to be simplified (CL 2, L1- -25). It would have been obvious to one of ordinary skill in

the art at the time of Applicants' invention to modify the apparatus of **Leibold** that included the apparatus including a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, communicated with the controller application and used the display to display information with the apparatus of **Brown et al**. that included execution of the one of the control modules within the computer including communicating with the further module. The artisan would have been motivated because that would allow a viewing application stored in the memory of the computer which when executed on the processing unit of the computer, to communicate with the controller application and use the display to display information sent from the further controller; and that would allow devices made by different manufacturers to be simulated.

8.9 As per Claim 20, **Leibold** and **Brown et al.** teach the apparatus of claim 19. **Leibold** does not expressly teach the apparatus further including an interface connected between the further controller and the controller application. **Brown et al.** teaches the apparatus further including an interface connected between the further controller and the controller application (CL 2, L14-25), as that allows devices made by different manufacturers to communicate with one another and interoperate to effect decentralized control within a process (CL 2, L1-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al.** that included the apparatus further including an interface connected between the further controller and the controller application. The artisan would have been motivated because that would allow devices made by

different manufacturers to communicate with one another and interoperate to effect decentralized control within a process.

8.11 As per Claim 21, **Leibold** and **Brown et al.** teach the apparatus of claim 20. **Leibold** does not expressly teach the apparatus wherein the interface is an OPC interface. **Brown et al.** teaches the apparatus wherein the interface is an OPC interface (CL 2, L14-25), as that allows devices made by different manufacturers to communicate with one another and interoperate to effect decentralized control within a process (CL 2, L1-25). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Brown et al.** that included the apparatus wherein the interface is an OPC interface, as that would allow devices made by different manufacturers to communicate with one another and interoperate to effect decentralized control within a process.

9. Claims 2, 3, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al.** (U.S. Patent 6, 377,859), and further in view of **Admitted prior art.**

9.1 As per Claim 2, **Leibold** and **Brown et al.** teach the apparatus of claim 1. **Leibold** teaches the apparatus further including a viewing application stored in the memory of the computer to be executed on the processing unit of the computer, wherein the viewing application when executed on the computer uses the user interface to display information pertaining to the one of the control modules to a user (CL4, L5-10).

Leibold does not expressly teach that the configuration application when executed on the computer creates a user interface for use in displaying information to a user. **Admitted prior art** teaches that the configuration application when executed on the computer creates a user interface for use in displaying information to a user (Page 2, L17-19), as that enables changes to be made to the user interface and the user interfaces used by the viewing applications to be tested (Page 8 describing prior art Fig. 1, L22-26). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Admitted prior art** that included the configuration application when executed on the computer creating a user interface for use in displaying information to a user. The artisan would have been motivated because that would enable changes to be made to the user interface and the user interfaces used by the viewing applications to be tested.

9.2 As per Claim 3, **Leibold** and **Brown et al**. teach the apparatus of claim 1. **Leibold** does not expressly teach that the apparatus further includes a configuration database application stored in the memory of the computer to be executed on the processing unit of the computer, wherein the configuration database application when executed on the computer, communicates with the controller application within the computer to manage a configuration database. **Admitted prior art** teaches that the apparatus further includes a configuration database application stored in the memory of the computer to be executed on the processing unit of the computer (Page 2, L29 to Page 3, L3; Page 4, L21-24), wherein the configuration database application when executed on the computer, communicates with the controller application within the computer to manage a

configuration database (Page 8 describing prior art Fig. 1, L12-14), as that would reduce the amount of hardware required by designing the system so that the configuration database application runs on the same PC as the control application and the viewing application (Page 4, L21-24). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Admitted prior art** that included the apparatus further including a configuration database application stored in the memory of the computer to be executed on the processing unit of the computer, wherein the configuration database application when executed on the computer, communicates with the controller application within the computer to manage a configuration database. The artisan would have been motivated because that would reduce the amount of hardware required by designing the system so that the configuration database application runs on the same PC as the control application and the viewing application.

9.3 As per Claims 13 and 14, these are rejected based on the same reasoning as Claims 2 and 3, supra. Claims 13 and 14 are method claims reciting the same limitations as Claims 2 and 3, as taught throughout by **Leibold, Brown et al**. and **Admitted prior art.**

10. Claims 4, 5, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al**. (U.S. Patent 6, 377,859), and further in view of **Bowling** (PCT WO 97/45778).

10.1 As per Claim 4, **Leibold** and **Brown et al**. teach the apparatus of claim 1. **Leibold** does not expressly teach that the controller application includes an execution rate parameter specifying the rate of execution of the one of the control modules within the computer. **Bowling** teaches that the controller application includes an execution rate parameter specifying the rate of execution of the one of the control modules within the computer (abstract; Page 2, Para 2; Page 4, Para 2), as that facilitates running the control procedures of the plant at a rate faster or slower than real time and the design and test of a part or the overall control of the industrial plant (Page 2, Para 2) and design, test and verification of various control system strategies in a comprehensive manner using appropriate simulation models (Page 4, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Bowling** that included the controller application including an execution rate parameter specifying the rate of execution of the one of the control modules within the computer. The artisan would have been motivated because that would facilitate running the control procedures of the plant at a rate faster or slower than real time and the design and test of a part or the overall control of the industrial plant and design, test and verification of various control system strategies in a comprehensive manner using appropriate simulation models.

10.2 As per Claim 5, **Leibold, Brown et al**. and **Bowling** teach the apparatus of claim 4. **Leibold** does not expressly teach that the execution rate parameter can be set to be greater than or less than a real time execution rate of the one of the control modules when the one of the control modules is executed within the distributed controller of the distributed process control

system. **Bowling** teaches that the execution rate parameter can be set to be greater than or less than a real time execution rate of the one of the control modules when the one of the control modules is executed within the distributed controller of the distributed process control system (Page 2, Para 2), as that would allow the design, test and verification of control system strategies in a more comprehensive manner using appropriate simulation models (Page 4, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Bowling** that included the execution rate parameter to be set to be greater than or less than a real time execution rate of the one of the control modules when the one of the control modules was executed within the distributed controller of the distributed process control system. The artisan would have been motivated because that would allow the design, test and verification of control system strategies in a more comprehensive manner using appropriate simulation models.

10.3 As per Claims 15 and 16, these are rejected based on the same reasoning as Claims 4 and 5, supra. Claims 15 and 16 are method claims reciting the same limitations as Claims 4 and 5, as taught throughout by **Leibold, Brown et al**. and **Bowling.**

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibold** (U.S. Patent 5,818,736) in view of **Brown et al**. (U.S. Patent 6, 377,859), and further in view of **Admitted prior art** and **Santoline et al.** (PCT WO 97/38362).

11.1 As per Claim 9, **Leibold** and **Brown et al**. teach the apparatus of claim 1. **Leibold** does not expressly teach that the controller application when executed within the distributed controller, communicates with the field devices through an input/output device. **Admitted prior art** teaches that the controller application when executed within the distributed controller, communicates with the field devices through an input/output device (Fig. 1, Item 16), because as per **Santoline et al.** that would allow the controller to receive sensor signals from the field devices and send control signals generated by the controller modules to the filed devices (Page 1, L9-13). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the apparatus of **Leibold** with the apparatus of **Admitted prior art** that included the controller application when executed within the distributed controller, communicating with the field devices through an input/output device. The artisan would have been motivated because that would allow the controller to receive sensor signals from the field devices and send control signals generated by the controller modules to the filed devices.

Response to Arguments

12. As per the applicants' arguments, the applicants' attention is requested to the corresponding claim rejections. In addition, the following explanation is provided to further explain the Examiner's position.

12.1 As per the applicants' argument that "None of the cited art discloses or suggests that it is possible or even desirable to simulate, on a single computer, the creation and execution of various control modules which are ultimately designed to be stored in and used in different devices within a distributed process control system; ...the cited art either fails to disclose simulation systems at all (e.g., Brown) or discloses simulation systems that specifically operate in multiple devices to simulate a process control system... the examiner's contention that it would have been obvious to combine the cited art to produce a single computer that simulates the operation of a distributed process control system can not stand when the simulation systems disclosed in the prior art all require more than one computer or device to operate; ...the Santoline system does not and cannot simulate the operation of the plant without communicating- with the distributed controllers actually running within the plant; it is not understood, nor has the examiner explained how the Santoline patent could possibly suggest or provide a motivation for implementing a complete simulation of the distributed control software in a single computer that is not the distributed controllers running in the plant when Santoline specifically requires communications with the distributed process controllers within the plant", the examiner has used a new reference **Leibold.**

Leibold teaches an apparatus for use with a distributed process control system having a user workstation remotely located from a distributed controller that controls one or more field devices using control modules (CL1, L24-27; CL1, L33-35; CL1, L38-41; Fig. 3A and 3B); the apparatus comprising:

a computer having a memory and a processing unit (Fig. 3A; Fig. 3B, Items 370, 375 and 385);

a configuration application stored in the memory of the computer which when executed on the user workstation or computer creates one or more control modules for execution by the distributed controller (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20); and

a controller application stored in the memory of the computer which may be executed on the processing unit of the computer (CL2, L49-52; CL2, L54-67);

wherein the configuration application, when executed on the computer, further creates the one of the control modules capable of being used by the distributed controller within the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

Leibold teaches that the controller application when executed on the computer causes execution of the one of the control modules within the computer to simulate the operation of the one of the control modules to thereby simulate operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30).

Leibold teaches that the apparatus further includes a simulation application stored in the memory of the computer which when executed on the processing unit of the computer, communicates with the controller application within the computer to simulate the operation of the distributed process control system (CL2, L49-52; CL2, L54-67; CL3, L2-8; CL9, L19-30).

Leibold teaches the apparatus further including a viewing application stored in the memory of the computer which, when executed on the processing unit of the computer,

communicates with the controller application and uses a user interface to display information (CL4, L5-10).

12.2 As per the applicants' argument that "While the admitted prior art discusses the use of simulation programs within a process plant using distributed control, the admitted prior art makes it clear that such simulation programs require communication with the distributed controllers already set up within the plant; thus, the admitted prior art is similar to Santoline in that the admitted prior art includes a simulation computer that must communicate with the distributed controllers within the process plant to perform simulation activities... it is clear that the prior art simulation software is stored in a computer that must communicate with the control software stored within the controllers (i.e., the distributed controllers within the process plant); while the art discussed in the background section of the application includes both configuration software, which can be used to create control modules, and controller software, which runs these modules, these two software components are stored in and executed by completely different computers, as is necessary in distributed process control systems in which controllers are typically located away from operator or other user interfaces... with the art discussed in the background section of the application, the configuration software and the controller software are specifically designed to be operated in different computers, not in the same computer...there is no suggestion in the background art section of the application or in any of the other prior art that is desirable or even possible to place distributed process control configuration software in the same computer as the controller software which runs control modules created by the configuration software... such a simulation system is, for all practical purposes, the exact

opposite of the design of distributed process control systems in which controller software is specifically distributed to different locations within the process plant away from the centralized control room (to put this functionality closer to where it is used within the plant) while the configuration software is stored in and run in the centralized control room that is accessible to the user or system designer", the examiner has used a new reference **Leibold.**

Leibold teaches an apparatus for use with a distributed process control system having a user workstation remotely located from a distributed controller that controls one or more field devices using control modules (CL1, L24-27; CL1, L33-35; CL1, L38-41; Fig. 3A and 3B); the apparatus comprising:

a computer having a memory and a processing unit (Fig. 3A; Fig. 3B, Items 370, 375 and 385);

a configuration application stored in the memory of the computer which when executed on the user workstation or computer creates one or more control modules for execution by the distributed controller (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20); and

a controller application stored in the memory of the computer which may be executed on the processing unit of the computer (CL2, L49-52; CL2, L54-67);

wherein the configuration application, when executed on the computer, further creates the one of the control modules capable of being used by the distributed controller within the distributed process control system (CL3, L47-59; Fig. 2, Item 250; CL9, L53-62; CL10, L7-13; CL10, L17-20).

12.3 As per the applicants' argument that "while Brown discloses a distributed process control system, it does not in any manner, disclose a simulation system for simulating the distributed process control system; as a result, it is impossible for Brown to suggest that it might be possible or desirable to create a distributed process control simulation system that runs on a single computer", the examiner directs the applicants' attention to Paragraph 12.1 above.

12.4 As per the applicants' argument that "While Bowling discloses a simulation system for a process control system, Bowling specifically discloses re-hosting a controller application directly from a controller within a process plant to the simulation system to simulate the operation of the controller; thus, Bowling specifically requires that the control software which is to be used in the simulation comes from the actual process controller within the plant; thus, to be created, the simulation system of Bowling requires communications between separate devices; Bowling does not disclose or suggest that the control modules to be simulated can be created in the first place by controller configuration software stored in the same simulation computer; likewise, during operation, the Bowling simulation system requires communication between different computer devices.; ... Bowling does not disclose or suggest a simulation system that is run and implemented on a single computer, but instead requires communication between different computers or devices to both set up the simulation system as well as to run the simulation system... Bowling does not disclose or suggest a configuration design and simulation system that can be run on a single computer to both create one or more control modules (applications to be run by a controller within the process plant) and to then simulate the operation of those

control modules, once created", the examiner directs the applicants' attention to Paragraph 12.1 above.

12.5 As per the applicants' argument that "None of the cited art discloses or suggests that it is even possible to provide a combined design and simulation environment in which controller software for a distributed process control system can both be created and tested on a single computer; further, because the simulation systems disclosed in the cited art all require communication between different computer devices both to be set up and to be run, none of the cited art provides a motivation or suggestion for creating a simulation system on a single computer", the examiner directs the applicants' attention to Paragraph 12.1 above.

12.6 As per the applicants' argument that "none of the cited art discloses or suggests using a first controller application to interface with a second and different type of controller to enable a user to view information from the second controller using a viewing application designed for the first controller application", the examiner respectfully disagrees.

Brown et al. teaches that using a first controller application to interface with a second and different type of controller (CL2, L1-25; process control devices communicate data across a bus structure for use by other process control devices; each process control device includes a microprocessor having the capability to communicate with other process control devices; the field devices interconnected within a process control network to communicate with one another

forming a control loop). This will enable the user to view information from the second controller from the display connected to the first controller.

The applicants' argument regarding "viewing information from the second controller using a viewing application designed for the first controller application" is not supported in the specification anywhere. The viewing application designed for the first controller will have only the user interfaces for that controller. The second controller will have different controlled variables and input variables and will require a different user interface to present the information. Therefore, the viewing application designed for the first controller cannot be used with the second controller information.

12.7 As per the applicants' argument that "Bowling does not disclose or suggest **a single MMI that can communicate with a controller application and display information sent from a further controller**- That is Bowling does not disclose or suggest using a first controller application (for a first type of controller) as part of an interface to a second and different type of controller application; ...the mere mention in the cited portions of Brown of decentralized process control systems and open communication protocols that allow devices by different manufacturers to interoperate does not teach or suggest anything with respect to MMIs or using a first type of controller application as part of an interface to a second type of controller application...Brown fails to disclose different types of controllers, much less using one type of controller as an interface to a second and different type of controller, Brown does not provide the needed motivation", the examiner respectfully disagrees.

Brown et al. teaches that using a first controller application to interface with a second and different type of controller (CL2, L1-25; process control devices communicate data across a bus structure for use by other process control devices; each process control device includes a microprocessor having the capability to communicate with other process control devices; the field devices interconnected within a process control network to communicate with one another forming a control loop). This will enable the user to view information from the second controller from the display connected to the first controller.

Regarding using "**a single MMI that can communicate with a controller application and display information sent from a further controller**", there is no support for this in the specification. The specification states at Page 9, Lines 18-20 that the configuration application can be used to create control modules and user **interfaces.** Therefore, it is implied that a user interface is associated with a control module; it should be so, since the controlled variables and control inputs for different controllers will be different and display requirements for different controllers will be different. Then it would be obvious to one of ordinary skill in the art to design a separate user interface to display the control information from the second controller. See also Page 9, Lines 25-26 and 27-28 of the specification.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is

571-272-3717. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on 571-272-3716. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Thangavelu
Art Unit 2123
April 19, 2005